

The spore-feeding genus *Nesothrips* (Thysanoptera: Idolothripinae) from China, with one new record

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Abstract: The species from China in the spore-feeding genus *Nesothrips* Kirkaldy are reviewed and *N. propinquus* is recorded for the first time from China. An identification key is provided for the four *Nesothrips* species currently recorded from China.

Key words: fungus-feeding thrips; Phlaeothripidae; taxonomy

中国菌食性蓟马岛管蓟马属分类及一新纪录种记述（缨翅目：灵管蓟马亚科）

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摘要：记述中国菌食性蓟马岛管蓟马属4种，其中皮岛管蓟马 *Nesothrips propinquus* (Bagnall, 1916) 为新纪录种。文中还提供了中国岛管蓟马属分种检索表。

关键词：菌食性蓟马；管蓟马科；分类

Introduction

The genus *Nesothrips* Kirkaldy, belonging to the Thysanoptera subfamily Idolothripinae, is particularly well represented in Australia and various Pacific islands. Mound (1974a) provided a key to the 14 species recognised in this genus at that time. The number of species listed in the genus *Nesothrips* has increased from 14 in the 1970s to the present total of 31 (ThripsWiki 2017). Of the 31 *Nesothrips* species previously listed, 45% of the described species are recorded from Australia (Eow *et al.* 2014) and six from New Zealand (Mound & Walker 1986), with most of the others from various Pacific islands. Of these, only three were recorded from China (*N. brevicollis*, *N. lativentris* and *N. peltatus*) (Dang & Qiao 2013) to which we addition one new record, *N. propinquus*, described below. *N. peltatus* Han & Cui is known only from China. Members of this genus usually have a pair of strong setae arising between the posterior ocelli.

Species in the genus *Nesothrips* live mainly on dead branches, with a few in leaf-litter and some at the base of grasses (Mound 1974b), and apparently feed on fungal spores. Some

Accepted 29 November 2017. Published 25 December 2017. Published online 18 December 2017.

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species of this genus, including *N. propinquus*, *N. brevicollis* and *N. lativentris*, are widespread pantropically, presumably distributed along human trading-ship routes in hay, seed pods, coconut husks (Mound 1974a; Mound & Palmer 1983). The objective of this paper is to provide an identification key to the 4 members of *Nesothrips* now recognised from China, including this one new record. Full nomenclatural and bibliographic details of the species considered in this paper are available on the web at ThripsWiki (2017).

Material and methods

This study is based on slide-mounted specimens in the Entomological Museum of the Northwest A&F University, Yangling, Shaanxi, China (NWAUFU). New records in this study were collected from Fujian and Jiangxi Provinces, China. Slide preparation of thrips follows Zhang *et al.* (2006). Specimens were observed with the help of an EVOS digital inverted microscope. Images were made using a Q-Imaging CCD with Automontage software. All measurements presented in this paper are in micrometers. Specimens of this newly recorded species are deposited in NWAUFU.

Abbreviations. Pronotal major setae: am — anteromarginal, aa — anteroangular, ml — midlateral, pa — posteroangular, epim — epimeral.

Taxonomy

Nesothrips Kirkaldy

Nesothrips Kirkaldy, 1907: 103. Type species *Nesothrips oahuensis* Kirkaldy, by monotypy.

Diagnosis. Small to medium sized. Head variable, broader than long or longer than broad; eyes sometimes prolonged ventrally; 1 pair of postocular setae well-developed; 1 pair of postocellar setae arising between or behind hind ocelli; maxillary stylets wide apart, almost V-shaped, usually retracted about halfway into head; maxillary palps first segment short and quadrate with the second segment longer and more slender, antennae 8-segmented; segment III with 2 sensoria, segment IV with 4. Pronotum transverse; notopleural sutures complete; basantra present; prospinasternum well developed, mesopraesternum usually boat-shaped; metathoracic sternopleural sutures usually present. Fore wings, if well developed, with duplicated cilia. Fore tarsal tooth normally absent in female, present in male. Pelta usually median rounded, with slender lateral wings. Abdominal tergites II–VII each with one pair of wing-retaining setae. Tube smooth, without lateral setae.

Key to species of *Nesothrips* from China

1. Pelta smooth and rectangular, without lateral wings..... *N. peltatus*
- Pelta reticulate and median rounded, with slender lateral wings (Figs. 5, 10)..... 2
2. Entire posterior margin of eyes prolonged on ventral surface (Fig. 9)..... *N. propinquus*
- Ventral posterior margin of eyes not prolonged (Figs. 1, 6)..... 3
3. Head about 1.5 times as long as wide; postocellar setae elongate, about twice as long as distance between their bases (Fig. 1)..... *N. lativentris*
- Head about as long as wide; postocellar setae shorter than distance between their bases (Fig. 6)..... *N. brevicollis*

1. *Nesothrips lativentris* (Karny, 1913) (Figs. 1–3)

This species, described originally from Taiwan, is now known to be widespread in the tropics from the Pacific islands including Fiji to the Seychelles in the Indian Ocean. It has been found commonly on dead palm leaves and coconuts (Mound & Palmer 1983).

Diagnosis. Macropterous, body and legs dark brown, tarsi paler, antennal segment III largely yellow, also basal half of IV–V (Fig. 3); head about 1.5 times as long as wide (Fig. 1), maxillary stylets retracted about halfway into head, postocellar setae acute, longer than distance between their bases, arising on tangent between posterior margins of hind ocelli; postocular setae long and acute; maxillary palp segment I as long as wide, segment II about 5 times as long as I. Pronotum with 5 pairs of major setae, am and aa small; metathoracic sternopleural sutures long and curved (Fig. 2); mesonotum transverse with reticulation; metanotum with reticulation medially, median setae minute, slender and acute, with 4–5 setae in addition to the median pair of major setae; pelta broadly hat-shaped, campaniform sensilla present; wing-retaining setae sigmoid; tergite IX setae about 0.8 times as long as tube. Male with strong longitudinal pronotal apodeme, fore femora enlarged, L-shaped, fore tarsal tooth large.

Distribution. Widespread around the tropics.

2. *Nesothrips brevicollis* (Bagnall, 1914) (Figs. 4–8)

This species is widespread in southern China. It was treated by Mound (1974a) as a synonym of the widely distributed species *N. minor*, but Okajima (1990, 2006) treated these two as different, with *N. minor* distributed between Fiji and Hawaii in the Pacific through southern Japan, Indonesia and Malaysia to India and Rodrigues, and having the wing-retaining setae long and curved, and the posterior margin of the pelta entire. After we examined the specimens of *N. brevicollis* in NWAUFU carefully, all of our specimens have the wing-retaining setae short and straight, and the posterior margin of the pelta slightly eroded medially (Fig. 5). Dang *et al.* (2013a) treated *N. atropoda*, an early species described by Duan *et al.* (1998) from Henan Province, as a synonym of *N. brevicollis*.

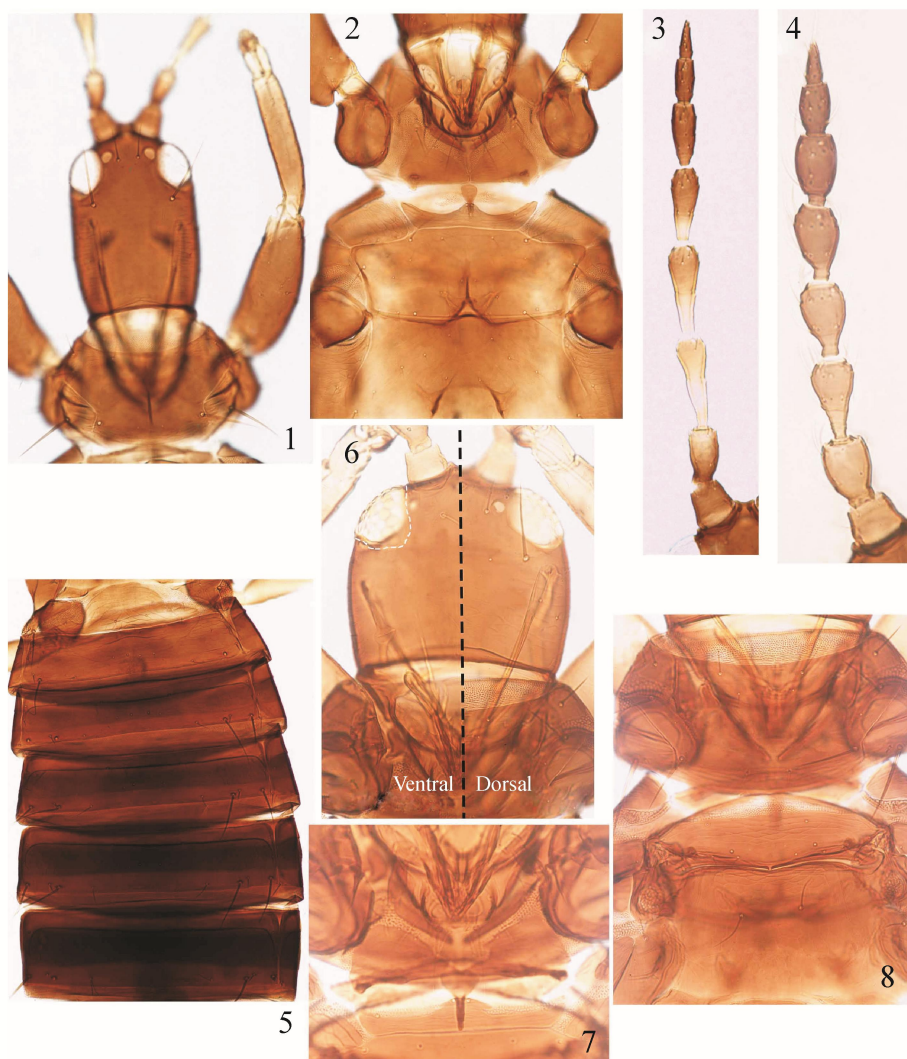
Diagnosis. Micropterae. Body brown, abdomen darker. Antennal (Fig. 4) segments I–III yellow, IV–V yellow with apex variably shaded brown, VI–VIII brown. Legs mostly yellow with brown shading at base, tarsi yellow. Head as long as wide, not projecting in front of eyes (Fig. 6); postocellar setae acute, on or close to tangent between posterior margin of hind ocelli; postocular setae acute; eyes slightly smaller dorsally than ventrally; maxillary stylets widely spaced V-shaped. Maxillary palp segment I as long as wide, segment II about 3 times as long as I; mesopresternum boat-shaped with margin slightly eroded (Fig. 7). Mesonotum transverse with reticulation; metanotum transverse, reticulate with one pair of median setae (Fig. 8). The posterior margin of the pelta slightly eroded medially; tergites III–VII wing-retaining setae short and straight (Fig. 5). Tergite IX setae acute, shorter than tube. Major male with swollen fore femora, stout fore tarsal tooth, pronotum with strong median longitudinal apodeme.

Distribution. China; Japan; America; Iran.

3. *Nesothrips peltatus* Han & Cui, 1991

This species remains known only from the one original female that was collected in Southwestern China, Sichuan Province. Amongst the species of *Nesothrips*, the rectangular pelta of this thrips is unique (Han & Cui 1991).

Distribution. China.



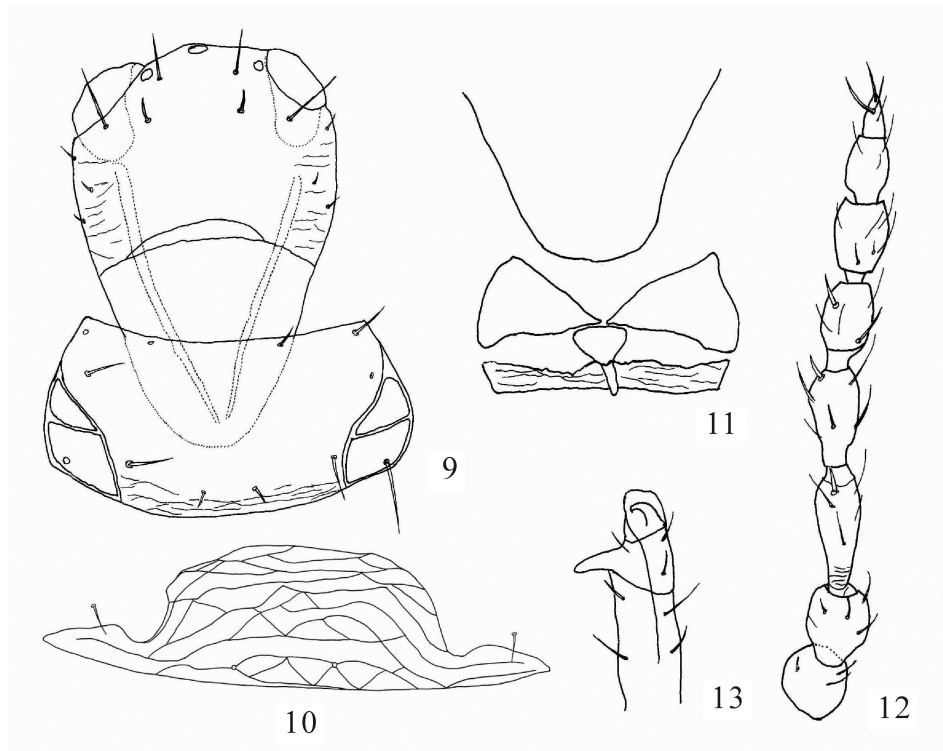
Figures 1–8. *Nesothrips* from China. 1–3. *N. lativentris*. 1. Head; 2. Maxillary palps and thoracic sternites; 3. Antenna. 4–8. *N. brevicollis*. 4. Antenna; 5. Pelta and tergites II–VI; 6. Head; 7. Maxillary palps and thoracic sternites; 8. Dorsum of thorax (pronotum, mesonotum, metanotum).

4. *Nesothrips propinquus* (Bagnall, 1916) (Figs. 9–13), new record to China

Female apterous. Colour. Body uniformly brown, tarsi and distal end of tube paler. Antennal VI–VIII uniformly brown, segments I–IV paler.

Head. Head wider than long, narrowed to base, not projecting in front of eyes, compound eyes ventrally with entire posterior margin prolonged (Fig. 9); ocelli small, postocellar acute, arising on tangent between posterior margins of hind ocelli; postocular setae acute, much shorter than distance between their bases; mid-dorsal setae minute and acute. Maxillary stylets V-shaped, wide apart. Maxillary palp segment I short, segment II about 3 times as long as I.

Thorax. Pronotum with 5 pairs of major setae, am smaller than other setae (Fig. 9); notopleural sutures complete. Mesopresternum boat-shaped but partly eroded (Fig. 11), metathoracic sternopleural sutures curved; mesonotum transverse with reticulation on anterior half; metanotum transverse with no reticulation medially.



Figures 9–13. *Nesothrips propinquus*. 9. Head; 10. Pelta; 11. Thoracic sternites; 12. Antenna; 13. Fore tarsal tooth of male.

Abdomen. Pelta reticulate, median lobe broadly rounded with lateral lobes connected, campaniform sensilla present (Fig. 10). Tergites III–VII each with one pair of small wing-retaining setae; tergite IX setae acute, about 0.6 times as long as tube.

Male apterous. Similar to female except fore femora enlarged, fore tarsi with stout tooth (Fig. 13); pronotum with strong median longitudinal apodeme.

Measurements (female in microns). Body length 1880. Head, length 157, median width 260, width across eyes 199; interocellar setae 37 long, bases 64 apart; postocular setae 57 long, bases 144 apart. Pronotum median length 136, anterior width 212, posterior width 292; major setae aa 31, am 19, ml 30, epim 61, pa 41. Tergite IX setae B1 82. Tube length 150, basal width 85, apical width 42. Antennal segments I–VIII length (width) are as follows: 37 (37); 44 (34); 64 (22); 56 (27); 49 (32); 44 (31); 36 (25); 28 (11).

Specimens examined. 1♀, **China**, Fujian Province, Gutian County, 697 m, collected from the base of grasses, 02-VIII-2003, collected by Fuzhen GUO. 1♂, **China**, Jiangxi Province, Lushan City, Haihui County, 150 m, collected from the base of grasses, 14-VIII-2016, collected by Wenting ZHANG.

Remarks. This species usually is associated with the bases of grasses, sedges, and tussock (Mound & Walker 1986). Mound and Walker (1986) suggest that it originally came from New Zealand. The eyes of *Nesothrips* are usually not prolonged ventrally. Amongst the Chinese species of *Nesothrips*, this species is distinguishable by the ventral prolongation of the eyes.

Distribution. China; Australia; New Zealand; South Africa; America.

Acknowledgements

The author is grateful to a reviewer for linguistic help with this manuscript. This project was supported by the National Natural Science Foundation of China (3127344, 31402001), the Shaanxi National Science Foundation Project (2017JQ3017) and the Science and Technology Projects in Weinan (2016KYJ-4-4).

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